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COMPARISON OF FARM BUSINESSES OF REGISTERED AND GRADE HERDS New York, 1977

C.A. Bratton

**Department of Agricultural Economics
Cornell University Agricultural Experiment Station
New York State College of Agriculture and Life Sciences
A Statutory College of the State University
Cornell University, Ithaca, New York 14853**

Foreword

This publication is part of a study supported by a special temporary grant to the Agricultural Experiment Station at Cornell University by Agway Inc. of Syracuse, New York.

Dairy management practices are one area of factors that affect dairy farm incomes. Economic data on these practices are limited. Data available from the dairy herd improvement records and the New York farm business management projects were merged so as to make it possible to study the effects of dairy management practices on farm incomes in 1977.

The dairy herd improvement records classify the herds as either registered or grade. Since questions are often asked concerning the economics of maintaining a registered herd, it was decided to study these two groups for 1977. James Lamkey did the statistical work under the supervision of C. A. Bratton, professor of farm management.

This study provides economic data on registered and grade herds which can be used in determining policy recommendations in New York State; by individual farmers to compare their performance with the norm; and for showing basic relationships of dairy management practices to income per operator and related business factors.

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COMPARISON OF FARM BUSINESSES
OF REGISTERED AND GRADE HERDS
New York, 1977

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Introduction

The Situation

A herd management practice of interest to dairy farmers is that of registered versus grade herds. Farmers often ask if it pays to maintain a registered herd. One approach used to answer management questions of this kind is to observe the experiences of farmers. We can observe the relative profitableness of farms with registered herds and those with grade herds. An analysis of the businesses also shows where and how the two types of herds may differ.

Since 1974 DHI information, when available, has been merged with the farm business financial data of the cooperators in the dairy farm business management projects. This makes it possible to study the effects of dairy herd management practices on the income from the business. For 1977, there were 363 farms for which both DHI and farm business financial data were available.

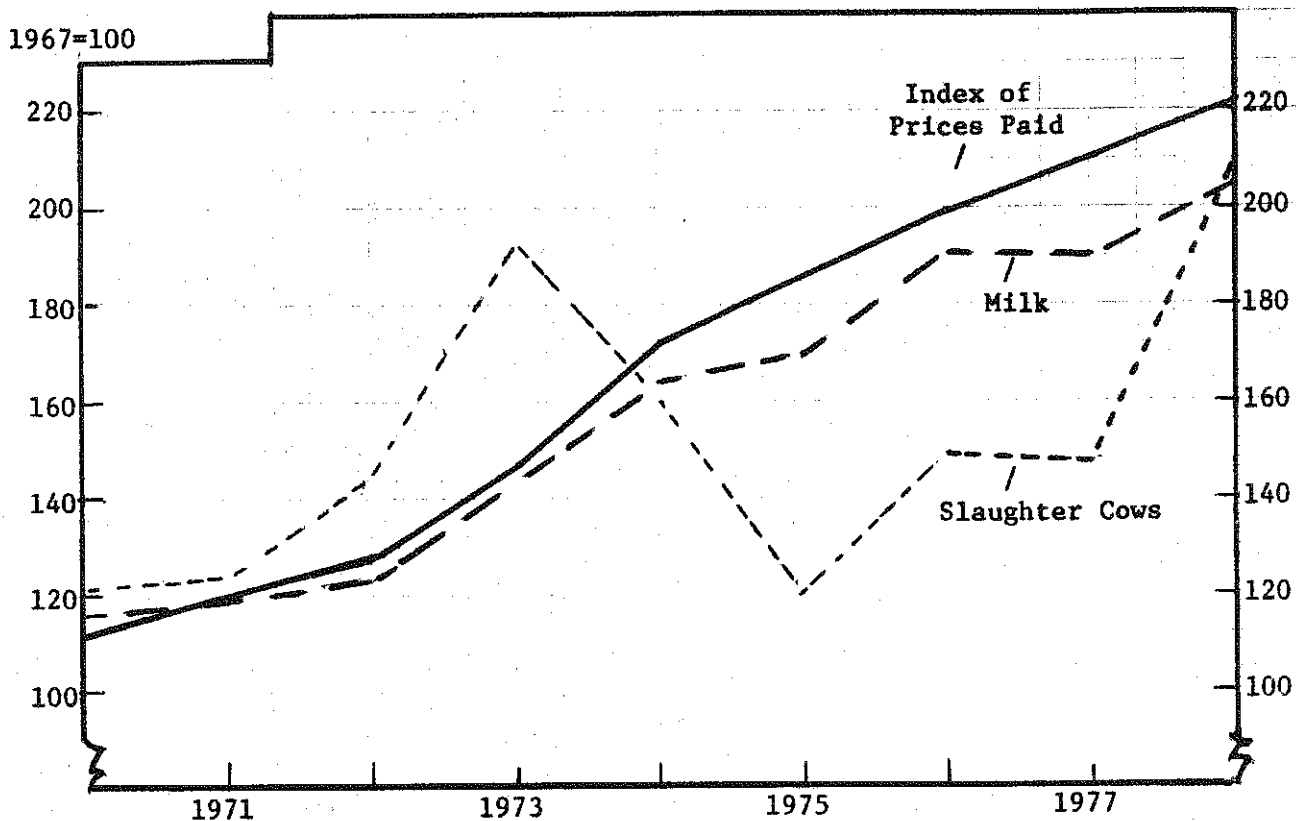
Dairy herd improvement records classify the herds as registered or grades. Some herds have both registered and grade animals but they are classified according to which predominates. The 363 farms on which combined data were available were sorted on the basis of registered or grade herds and averages for each were computed. The results are presented in the same format as that used in the annual farm business summary reports.

Study Procedures

A computer listing was made of the farm business summary cooperators who indicated they had dairy herd improvement records. Then the dairy herd improvement identification numbers for these farms were obtained from the Animal Science Department. Farms (DHI) with less than 365 days of records, milk only records, or "high-medium-low" feeding records were discarded for study purposes.

Once farms from the two sources were definitely identified and matched, the DHI information selected for analysis was merged with the farm business summary information. A computer program sorted the data into various groupings, and average values for all factors in each group were printed out. Comparative data for the registered and grade herds were put in cross tabulation tables and are reported in this publication.

PRICES RECEIVED AND PAID BY N.Y. DAIRY FARMERS, 1970-1977



SOURCE: USDA - Agricultural Prices

The general level of farm incomes is determined by the relationship of prices paid to prices received by farmers. The graph above shows the relationship improved in 1978 but it is still not as favorable as in 1970 through 1973. The table below contains some of the important prices for the last ten years. Prices paid by New York dairy farmers are up 106 percent in the last ten years while the milk prices have increased only 83 percent.

PRICES RECEIVED AND PAID BY NEW YORK DAIRY FARMERS, 1969-1978

Year	Milk 3.5% B.F. (cwt.)	Slaughter Cows (cwt.)	Dairy Feed 16% Prot. (ton)	Gasoline Bulk Delv. Reg. (gal.)	Ferti- lizer 10-20-20 (ton)	Index Prices Paid NY D. Farmers (1967=100)
1969	\$5.66	\$19.30	\$ 72	\$.33	\$ 87	107
1970	5.89	20.70	77	.33	89	112
1971	6.02	21.20	81	.34	93	120
1972	6.25	24.48	83	.34	94	126
1973	7.30	32.80	115	.37	103	146
1974	8.24	27.40	138	.51	160	172
1975	8.64	20.60	132	.54	175	186
1976	9.71	25.57	139	.57	158	200
1977	9.61	25.09	139	.61	155	210
1978	10.38	35.58	137	.64 est.	157 est.	221

Summary of Farm Businesses

Business Characteristics

A knowledge of the farm resources used and the business characteristics is important in evaluating management performance. The table below shows important farm business characteristics, the number of farms reporting these characteristics, and the average use of labor and land resources for the two groups of farms being studied.

Table 1. BUSINESS CHARACTERISTICS OF REGISTERED AND GRADE HERDS
363 New York Dairy Farms, 1977

<u>Number of farms reporting</u>					
<u>Type of Business</u>	<u>Registered</u>	<u>Grade</u>	<u>Business Records</u>	<u>Registered</u>	<u>Grade</u>
Individual	99	196	Account Book	49	108
Partnership	20	41	Agrifax	18	46
Corporation	4	3	CAMIS	37	50
<u>Barn Type</u>			Agway	4	13
Stanchion	86	148	Farm Bureau	4	5
Free Stall	36	90	Other	11	18
Other	1	2	<u>Dairy Records</u>		
<u>Milking System</u>			D.H.I.C.	116	189
Bucket & Carry	2	3	Owner Sampler	7	51
Dumping Station	29	76			
Pipeline	62	80			
Herringbone	26	70			
Other Parlor	4	11			
<u>Averages of farms reporting</u>					
<u>Labor Force</u>	<u>Registered</u>	<u>Grade</u>	<u>Land Used</u>	<u>Registered</u>	<u>Grade</u>
Operator(s)	15 mo.	14 mo.	Total acres:		
Family paid	3 mo.	3 mo.	Owned	286	306
Family unpaid	3 mo.	3 mo.	Rented	84	95
Hired	8 mo.	9 mo.	Crop acres:		
Total months	29 mo.	29 mo.	Rented	66	71
<u>Operators</u>	152	290	Total	202	216
Age	43 yrs.	42 yrs.	<u>Number of Cows</u>		
Est. value labor			Beg. of year	66	71
and management	\$11,600	\$12,100	End of year	67	72
			Av. for year	66	70

There were nearly twice as many grade as registered herds in this group of 363 farms. A study of the business characteristics shows some interesting comparisons.

The average labor force was the same (29 months) for both registered and grade herds but the grade herds averaged four more cows per farm than the registered (66 vs. 70). A larger proportion of the grade herds than of the registered herds had free stall barns (38% vs. 29%). For the dairy records, only 6% of the registered herds used owner sampler compared with 21% of the grade herds.

Table 2. FARM INVENTORY VALUES BY REGISTERED AND GRADE HERDS
363 New York Dairy Farms, 1977

Item	Registered		Grade	
	1/1/77	1/1/78	1/1/77	1/1/78
Livestock	\$ 58,459	\$ 62,010	\$ 50,934	\$ 54,039
Feed & supplies	20,917	21,051	20,488	20,949
Machinery & equipment	50,070	55,290	50,595	55,367
Land & buildings	134,912	144,638	142,447	152,919
TOTAL	\$264,358	\$282,989	\$264,464	\$283,274

There was little difference in the total inventory per farm for registered and grade herds both at the beginning and end of the year. In both kinds of herds, the number of cows increased by one (p. 3) and the total inventory increased by 7% during the year.

The total investment per cow was higher for the registered herds than for the grades (\$4,222 vs. \$3,934). This may be explained in part by the difference in average cow numbers for the two groups. The machinery investment per cow for registered herds was \$56 higher than for the grades. Land and buildings were \$34 higher for the registered herds.

The average livestock inventory value per cow was \$925 for the registered herds compared with \$750 for the grade herds. Part of this can be explained by the higher proportion of heifers for the registered herds (81% vs. 73%). However, if it were assumed that average heifer values were one-half that of cows, the average values of cows would be \$660 for the registered, and \$550 for the grades.

The major difference in inventory values is in the value per animal. The registered herds valued their cows at about \$100 more per head than the grade herds. It is reasonable to expect the average values of cows and heifers to be higher for registered herds than for grade herds.

Table 3. INVESTMENT PER COW BY REGISTERED AND GRADE HERDS
363 New York Dairy Farms, 1977

Item	January 1, 1978	
	Registered	Grade
Number of farms	123	240
Number of cows (1/1/78)	67	72
% av. no. heifers is of av. no. cows	81%	73%
<u>Inventory Value Per Cow for:</u>		
Livestock	\$925	\$750
Feed & supplies	314	291
Machinery	825	769
Land & buildings	2,158	2,124
TOTAL	\$4,222	\$3,934

Machinery and Real Estate Inventory Calculations

Capital outlays for machinery and buildings usually occur in large uneven amounts but assets depreciate gradually over a period of time. Machinery depreciation as calculated below averaged 9% and 10% for the two kinds of herds.

Table 4. MACHINERY & EQUIPMENT DEPRECIATION BY REGISTERED & GRADE HERDS
363 New York Dairy Farms, 1977

Item	123 Registered Herds	240 Grade Herds
Beginning Inventory	\$50,070	\$50,595
Machinery Purchases	<u>11,093</u>	<u>10,865</u>
Total (1)	\$61,163	\$61,460
End of Year Inventory	\$55,290	\$55,367
Machinery Sold	<u>262</u>	<u>174</u>
Total (2)	55,552	55,541
DEPRECIATION (1 minus 2)	\$ 5,611	\$ 5,919
Percent Depreciation	9%	10%

Lost Capital is the difference between the cost of new buildings and the amount these improvements add to the value of the farm. It is not included in the farm expenses since building depreciation is based on the full cost of new buildings and will account for lost capital over the life of the building. Building depreciation was taken from the farm depreciation schedule and is included as a farm expense. Real Estate appreciation was estimated by each farm operator and averaged 2.6% and 3.0% on these two kinds of farms in 1977.

Table 5. REAL ESTATE INVENTORY CALCULATIONS FOR REGISTERED & GRADE HERDS
363 New York Dairy Farms, 1977

Item	123 Registered Herds	240 Grade Herds
Beginning Market Value	\$134,912	\$142,447
Cost of New Real Estate	\$10,540	\$10,373
Less Lost Capital	<u>-1,699</u>	<u>-1,276</u>
Value of New Added	+8,841	+9,097
Less Building Depreciation	-2,669	-2,684
Less Real Estate Sold	-9	-265
Total Without Appreciation	\$141,075	\$148,595
Appreciation of Beginning Real Estate	+3,563	+4,324
End of Year Market Value	\$144,638	\$152,919

The percent depreciation on machinery was 1% higher for the grade herds than the registered herds (9% vs. 10%). The building depreciation amounts were about the same for the two kinds of herds (\$2,669 vs. \$2,684) but the appreciation rates were slightly higher (2.6% vs. 3.0%) for the grade herds than for the registered herds. These differences are small and probably not significant.

Receipts

The farm receipts for the year show the general nature and size of the business. Below are the sources and average amounts of receipts for these 123 registered herds and 240 grade herds for 1977.

Table 6. FARM RECEIPTS BY REGISTERED AND GRADE HERDS
363 New York Dairy Farms, 1977

Item	Registered		Grade	
	Amount	Percent	Amount	Percent
Milk sales	\$ 91,260	89	\$ 96,538	91
Crop sales	759	1	815	1
Dairy cattle sold	7,262	7	5,841	6
Calves & other livestock sales	1,630	2	1,216	1
Gas tax refunds	147	--	153	--
Government payments	377	--	359	--
Work off farm	93	--	87	--
Custom machine work	87	--	120	--
Other	1,081	1	1,208	1
Total Cash Receipts	\$102,696	100	\$106,337	100
Increase in livestock	3,551		3,105	
Increase in feed & supplies	134		461	
TOTAL FARM RECEIPTS	\$106,381		\$109,903	

Total cash receipts and total farm receipts were higher for the grade herds than for the registered. This is accounted for by the larger number of cows (70 vs. 66). Receipts from livestock sold, however, was larger for the registered herds and accounted for 9% of the cash receipts compared with 7% for the grade herds. This is probably a significant difference between the two kinds of herds.

The average price received for milk for the registered herds was \$9.78 compared with \$9.74 for the grade herds. The milk sales per cow were about the same. Total cash receipts per man were slightly higher for the grade herds.

Table 7. INCOME ANALYSIS BY REGISTERED AND GRADE HERDS
363 New York Dairy Farms, 1977

Item	Registered	Grade
Average price/cwt. milk sold	\$9.78	\$9.74
Milk sales per cow	\$1,383	\$1,379
Total cash receipts/man	\$42,436	\$43,941

Expenses

Total farm expenses exceeded \$100,000 per farm for both types of herds. For both groups of farms, feed, labor and interest were the three largest cash expense items. Cash interest payments were significantly less on the registered than on the grade farms indicating a difference in debt situation (see p. 10).

Table 8. FARM EXPENSES BY REGISTERED AND GRADE HERDS
363 New York Dairy Farms, 1977

Item	Registered		Grade	
	Amount	Percent	Amount	Percent
Hired labor	\$ 7,331	9	\$ 8,268	10
<u>Feed</u>				
Dairy concentrate	26,036	33	28,605	34
Other feed	1,244	2	1,315	2
<u>Machinery</u>				
Machine hire	804	1	747	1
Machinery repairs	4,631	6	4,745	6
Auto expense (farm share)	337	--	342	--
Gas & oil	2,939	4	2,936	4
<u>Livestock</u>				
Purchased livestock	2,231	3	2,602	3
Breeding fees	1,526	2	1,165	1
Veterinary & medicine	1,832	2	1,620	2
Milk marketing	2,237	3	2,384	3
Other livestock expense	3,580	5	3,442	4
<u>Crops</u>				
Fertilizer & lime	4,340	6	4,960	6
Seeds & plants	1,476	2	1,512	2
Spray, other crop expense	1,292	2	1,408	2
<u>Real Estate</u>				
Land, building, fence repair	1,730	2	1,579	2
Taxes	2,552	3	2,613	3
Insurance	1,767	2	1,705	2
Rent	1,139	1	1,285	1
<u>Other</u>				
Telephone (farm share)	385	1	370	--
Electricity (farm share)	1,727	2	1,704	2
Interest paid	5,555	7	7,491	9
Miscellaneous	1,403	2	1,058	1
Total Cash Expenses	\$ 78,094	100	\$ 83,856	100
<u>Noncash Items</u>				
Machinery depreciation	\$ 5,611		\$ 5,919	
Building depreciation	2,669		2,684	
Unpaid family labor	1,200		1,200	
Interest on equity capital @ 7%	14,252		12,724	
Decrease in feed	--		--	
TOTAL FARM EXPENSES	\$101,826		\$106,383	

Financial Summary of Year's Business

The financial summary of the year's operation reflects the results of management. Researchers have developed a number of ways to measure the returns from a farm business. Four common measures are reported on the next two pages.

Table 9. NET CASH FARM INCOME BY REGISTERED AND GRADE HERDS
363 New York Dairy Farms, 1977

Item	Registered	Grade	Average 570 Farms, 1977
Cash Farm Receipts	\$102,696	\$106,337	\$104,243
Cash Farm Expenses	<u>78,094</u>	<u>83,856</u>	<u>80,646</u>
NET CASH FARM INCOME	\$ 24,602	\$ 22,481	\$ 23,597

Net cash farm income reflects the amount of cash available from the year's operation of the business for family living and payments on debts. The net cash farm income for the registered herds was \$2,100 larger than for the grade herds, and larger than the average for all 570 farms in the general summary.

Table 10. LABOR AND MANAGEMENT INCOME BY REGISTERED AND GRADE HERDS
363 New York Dairy Farms, 1977

Item	Registered	Grade	Average 570 Farms, 1977
Total Farm Receipts	\$106,381	\$109,903	\$107,395
Total Farm Expenses	<u>101,826</u>	<u>106,383</u>	<u>103,657</u>
LABOR & MGT. INCOME	\$ 4,555	\$ 3,520	\$ 3,738
Number of Operators	1.2	1.2	1.2
LABOR & MGT. INCOME PER OPERATOR	\$ 3,688	\$ 2,914	\$ 3,049

Labor and management income is the return to the operator for his efforts in operating the business. A 7 percent charge for the use of the operator's equity capital in the business has been included as a farm expense. This interest charge reflects what the operator could have earned from this capital had it been invested elsewhere, such as in bank certificates. Labor and management income is the measure generally used for comparing farm businesses.

The average labor and management income per operator for the registered herds was \$3,688 and for the grade herds \$2,914, or about one-fourth more for the registered herds. The grade herds average labor income was \$135 below the average for all 570 farms in 1977. In brief, the registered herds did pay better in 1977.

Labor, management, and ownership income per operator reflects the combined return to the farmer for his triple role of worker-manager, financier, and owner. The return here provides for the operator's living and his gain in business net worth. Again with this measure, the registered herds had the highest average income.

Table 11. LABOR, MANAGEMENT, AND OWNERSHIP INCOME
BY REGISTERED AND GRADE HERDS
363 New York Dairy Farms, 1977

Item	Registered	Grade	Average 570 Farms, 1977
Labor & management income	\$ 4,555	\$ 3,520	\$ 3,738
Real estate appreciation	3,563	4,324	4,228
Interest on equity capital	<u>14,252</u>	<u>12,724</u>	<u>13,237</u>
Total Per Farm	\$22,370	\$20,568	\$21,203
Number of operators	1.2	1.2	1.2
LABOR, MANAGEMENT AND OWNERSHIP INCOME/OPERATOR	\$18,113	\$17,026	\$17,294

Return on equity capital is a common measure for nonfarm businesses. It can be computed with or without real estate appreciation. Both measures are shown below. The registered herds had a return of 4.0% on equity capital and the grade herds had a 3.3% return and all 570 farms had a 3.6% return when the appreciation was included. This is a lower return than the charge made in calculating labor and management income.

Table 12. RETURN ON EQUITY CAPITAL BY REGISTERED AND GRADE HERDS
363 New York Dairy Farms, 1977

Item	Registered	Grade	Average 570 Farms, 1977
<u>Including Real Estate Appreciation</u>			
Labor, Mgt. & Ownership Income/Farm	\$22,370	\$20,568	\$21,203
Less: Value Operator's Labor & Mgt.*	<u>14,234</u>	<u>14,506</u>	<u>14,292</u>
Return on Equity Capital	\$ 8,136	\$ 6,062	\$ 6,911
Rate of Return on Equity Capital	4.0%	3.3%	3.6%
<u>Excluding Real Estate Appreciation</u>			
Return on Equity Capital (see above)	\$ 8,136	\$ 6,062	\$ 6,911
Less: Real Estate Appreciation	<u>3,563</u>	<u>4,324</u>	<u>4,228</u>
Return on Equity Capital	\$ 4,573	\$ 1,738	\$ 2,683
Rate of Return on Equity Capital	2.2%	0.9%	1.3%

*Value of operator's labor and management estimated by operators (pg. 3).

Farm Family Financial Situation

The financial situation is an important part of a farm business summary. It affects the current cash outflow and future capital investment decisions. A farmer may have a good labor income, but a high debt payment schedule may seriously restrict his management possibilities.

Table 13. FARM FAMILY FINANCIAL SITUATION BY REGISTERED AND GRADE HERDS
363 New York Dairy Farms, January 1, 1978

Item	Registered		Grade	
	Amount	Percent	Amount	Percent
<u>Assets</u>				
Livestock	\$ 62,010	21	\$ 54,040	18
Feed and supplies	21,051	7	20,949	7
Machinery and equipment	55,291	19	55,367	19
Land and buildings	144,638	49	152,919	52
Co-op investment	3,691	1	3,822	1
Accounts receivable	6,154	2	7,257	2
Cash and checking accounts	1,484	1	1,941	1
Total Farm Assets	\$294,319	100	\$296,295	100
Savings accounts	3,310		2,961	
Cash value life insurance	3,470		2,398	
Stocks and bonds	3,416		1,739	
Nonfarm real estate	1,974		2,376	
Auto (personal share)	1,029		806	
All other	3,307		1,287	
Total Nonfarm Assets	\$ 16,506		\$ 11,567	
TOTAL ASSETS	\$310,825		\$307,862	
<u>Liabilities</u>				
Real estate mortgage	\$ 52,707	58	\$ 64,128	56
Liens on cattle & equipment	27,587	31	39,648	35
Installment contracts	2,741	3	2,675	2
Notes and other farm debt	7,686	8	8,072	7
Total Farm Liabilities	\$ 90,721	100	\$114,523	100
Nonfarm Liabilities	1,246		849	
TOTAL LIABILITIES	\$ 91,967		\$115,372	
Farm Net Worth (equity capital)	\$203,598		\$181,772	
Family Net Worth	\$218,858		\$192,490	

Farm net worth (equity capital) averaged \$203,598 for the registered herds and \$181,772 for the grade herds. Farm Net Worth is Total Farm Assets less Total Farm Liabilities. Family Net Worth is Total Assets less Total Liabilities. The registered herds had about \$24,000 less liabilities than the grade herds, which in turn gave a higher farm net worth. This suggests that the registered herds were in a somewhat better financial position than the grade herds.

Payment Ability is an important consideration in determining how proposed investments should be financed. The farm business must produce enough cash income to meet operating expenses, to cover family or personal living expenses, and to make debt payments. Cash purchases of capital items that normally take place during the year must also be included.

Payment ability is calculated in the table below. Interest paid is added to net cash farm income because planned or budgeted debt payments include interest as well as principal. Family living expenses are estimated to calculate the cash available for debt payment and capital purchases made in cash. There was no significant difference between the two kinds of herds.

Debt Payments Planned for 1978 were the scheduled debt payments as of January 1978. Debt payments per cow were figured on the basis of the average number of cows for the year. The percent debt payments are of milk sales is based on last year's milk sales which may be less than those for the coming year if there has been an expansion in the business. With less debt the commitments for payments were lighter for the registered than the grade herds.

Table 14. FINANCIAL MEASURES AND DEBT COMMITMENT
BY REGISTERED AND GRADE HERDS
363 New York Dairy Farms, January 1, 1978

Item	Registered	Grade	570 N.Y. Farms
<u>Payment Ability</u>			
Net cash farm income (from p. 8)	\$24,602	\$22,481	\$23,597
Add: Interest paid (from p. 7)	<u>5,555</u>	<u>7,491</u>	<u>6,947</u>
CASH AVAILABLE FOR DEBT SERVICE & LIVING	\$30,157	\$29,972	\$30,594
Less: Family living expenses*	<u>12,000</u>	<u>12,000</u>	<u>12,000</u>
CASH AVAILABLE FOR DEBT PAYMENT AND CAPITAL PURCHASES	\$18,157	\$17,972	\$18,544
<u>Scheduled Annual Debt Payments</u>			
Real estate mortgage	\$ 6,651	\$ 7,146	\$ 7,141
Cattle and equipment liens	5,356	9,268	7,895
Installment contracts	810	819	949
Notes and other	<u>2,033</u>	<u>1,650</u>	<u>2,048</u>
TOTAL PAYMENTS PLANNED 1978	\$14,850	\$18,883	\$18,033
<u>Measure of Debt Commitment & Equity Position</u>			
Scheduled debt payments per cow	\$225	\$266	\$254
Scheduled debt payments as % of milk sales	16%	20%	19%
Farm debt per cow	\$1,375	\$1,613	\$1,509
Percent equity (total)	70%	63%	65%

*Estimated at \$10,000 per family and one family per operator.

An analysis of the farm business financial situation can point up many things about the operator's management of finances. The checklist below is designed to help focus on financial management practices and how they compare with other dairymen.

Table 15. A FARM FINANCE CHECKLIST FOR REGISTERED AND GRADE HERDS
363 New York Dairy Farms, 1977

		1977		
		Av. 570 N.Y. Farms	Av. Top 10% Farms	
	Registered	Grade		
A. <u>How assets are being used:</u>				
1. Total inventory (capital)/cow	\$4,300	\$4,000	\$4,000	\$3,700
2. % assets in productive units	21%	18%	18%	20%
3. % assets in farm real estate	49%	52%	49%	45%
4. % assets in machinery	19%	19%	18%	18%
5. % assets in cash and checking accounts	1%	1%	1%	1%
B. <u>Characteristics of the debt structure:</u>				
1. % debt long-term	58%	56%	55%	58%
2. % debt in chattel liens	31%	35%	34%	31%
3. % debt installment contracts	3%	2%	3%	3%
4. % debt in notes & open accounts	8%	7%	8%	8%
C. <u>Have you borrowed to the limit?</u>				
1. % equity in business	70%	63%	65%	71%
2. Real estate debt as % of inventory value	36%	42%	39%	38%
3. Liens as % of livestock & machinery inventory	24%	36%	36%	24%
D. <u>How is your debt repayment schedule?</u>				
1. Farm debt per cow	\$1,375	\$1,613	\$1,500	\$1,200
2. Scheduled debt payments/cow	\$225	\$266	\$254	\$216
3. Scheduled debt payments as % milk check	16%	20%	19%	15%
E. <u>What financial progress did you make last year?</u>				
1. Change in farm assets	xxx	xxx	+\$20,100	xxx
2. Change in farm debts	xxx	xxx	+\$9,500	xxx
3. Change in net worth	xxx	xxx	+\$10,600	xxx

The financial position of the registered herd farms as shown on the checklist above was stronger than that of the grade herds and in many respects approached that of the top 10% of the 570 farms in 1977.

Analysis of the Farm Business

Research has shown that certain factors controlled by management affect farm incomes. In analyzing a farm business, we examine the factors of size, rates of production, labor efficiency, capital efficiency and cost control.

Size of Business

Studies have shown that in general larger farms pay better. Two basic reasons for this are that larger businesses make possible more efficient use of overhead inputs such as labor and machinery and there are more production units (cows) on which to make a profit. However, if a large farm is poorly operated, the losses also will be larger.

Table 16. MEASURES OF SIZE OF BUSINESS BY REGISTERED AND GRADE HERDS
363 New York Dairy Farms, 1977

Measure	Registered	Grade	570 New York Farms, 1977
Number of cows	88	70	71
Number of heifers	53	51	51
Pounds milk sold	932,800	991,600	964,800
Man equivalent	2.4	2.4	2.5
Total work units	742	780	785
Total acres of crops	202	216	219

The average size of the grade herds was larger than the registered except for man equivalent, and was about the same as the average of the 570 New York State farms summarized for 1977.

Number of cows is one measure of size. In the table below, the registered and grade herds were sorted by number of cows and the labor income is shown for each size group. In general, the large farms paid better. The highest labor and management income per operator for both groups was for 100 and over cows.

Table 17. COWS PER FARM AND LABOR AND MANAGEMENT INCOME
570 New York Dairy Farms, 1977

Number of Cows	Percent of Farms		Labor & Mgt. Income/Operator	
	Registered	Grade	Registered	Grade
Under 40	15%	13%	\$2,113	-\$1,388
40 - 69	52	50	1,573	2,831
70 - 99	19	22	6,206	4,241
100 & over	15	15	7,103	4,641

The grade herds had the better average income for the 40 to 69 cow group but the registered herds paid better for all the other three groups.

Rates of Production

Crop yields and rates of animal production are factors that affect farm incomes. In the table below, we examine the crops grown and yields along with the pounds of milk sold per cow.

Table 18. CROP YIELDS AND MILK SOLD PER COW
BY REGISTERED AND GRADE HERDS
363 New York Dairy Farms, 1977

Crop	Average of Registered Herds			Average of Grade Herds		
	Farms			Farms		
	Reporting	Acres	Yield	Reporting	Acres	Yield
Dry hay	123	66	(combined	240	74	(combined
Hay crop silage	85	70	below)	184	67	below)
Corn silage	115	54	14.9 ton	227	59	13.9 ton
Grain corn	57	57	84 bu.	93	64	95 bu.
Oats	37	26	47 bu.	52	27	50 bu.

Hay equivalent:						
All hay crops	123	107	2.6 ton	240	117	2.3 ton
All hay & silage	123	157	3.3 ton	240	174	3.0 ton
Milk sold per cow		14,133			14,166	

Tons of hay equivalent of all hay and silage is a good measure of the overall rate of forage production. One ton of hay equivalent is equal to one ton of dry hay containing 90 percent dry matter.

The forage crop yields reported by the registered herd farms were generally better than those from the grade herd farms. There was no significant difference in the pounds of milk sold per cow.

The importance of good production per cow is shown in the table below. On a dairy farm, the rate of production per cow is a key factor affecting the income for both registered and grade herds.

Table 19. MILK SOLD PER COW & LABOR INCOME BY REGISTERED & GRADE HERDS
363 New York Dairy Farms, 1977

Pounds of Milk Sold Per Cow	Number of Farms		Labor & Mgt. Income/Opr.	
	Registered	Grade	Registered	Grade
Under 10,000	6	10	-\$8,849	-\$5,418
10,000 - 10,999	7	9	-884	-4,957
11,000 - 11,999	6	21	5,259	2,933
12,000 - 12,999	18	38	-261	66
13,000 - 13,999	21	58	5,948	3,532
14,000 - 14,999	25	37	3,480	7,011
15,000 - 15,999	26	39	7,064	1,897
16,000 & over	14	28	4,647	5,864

Labor Efficiency

Efficient use of labor is an important factor in profitable milk production. Several measures of accomplishment per man or labor efficiency are shown below.

Table 20. MEASURES OF LABOR EFFICIENCY BY REGISTERED AND GRADE HERDS
363 New York Dairy Farms, 1977

Item	Registered	Grade	570 New York Farms, 1977
Man equivalent	2.4	2.4	2.5
Cows per man	27	29	28
Lbs. milk sold per man	385,455	409,752	385,900
Work units per man	307	322	314

Number of cows per man is calculated by dividing the average number of cows by the man equivalent which includes the total farm labor force. The farms with grade herds cared for two more cows per man than the registered herd farms.

Pounds of milk sold per man is the best measure of labor efficiency on the dairy farm. It measures the ability of the labor force to handle a large number of cows without sacrificing milk output per cow. The grade herds sold 24,000 more pounds of milk per man than the registered herds.

It is important to look at other measures of labor efficiency, such as work units per man because all dairy farms do not have the same relationship between cows, heifers, and crops grown.

Labor efficiency depends on a number of things. Among these are the amount of mechanization, the field and building layout, the work methods, and the abilities of the workers. All of these are management items under the control of the operator. As shown in the table below, there is a general relationship between pounds of milk sold per man and labor and management income.

Table 21. MILK SOLD PER MAN AND LABOR AND MANAGEMENT INCOME
BY REGISTERED AND GRADE HERDS
363 New York Dairy Farms, 1977

Pounds of Milk Sold Per Man	Number of Farms		Labor & Mgt. Income/Opr.	
	Registered	Grade	Registered	Grade
Under 250,000	11	23	-\$4,681	-\$2,163
250,000 - 299,999	17	30	1,767	-606
300,000 - 349,999	22	37	1,211	3,455
350,000 - 399,999	14	44	5,876	-533
400,000 - 449,999	22	28	3,665	3,135
450,000 - 499,999	14	27	295	8,113
500,000 - 599,999	16	39	10,981	6,842
600,000 & over	7	12	14,144	8,352

Capital Efficiency

Capital is a key resource and it is important to analyze its use in the business. The measures of capital efficiency shown in the table below include owned as well as borrowed capital. Management of the borrowed capital was examined on page 12 in the form of a farm finance checklist. It's possible for a business to be under capitalized but investing too much capital per productive unit is a more common problem. The best way a farmer can get a good return on capital invested in his business is to "put it to work" efficiently.

Table 22. MEASURES OF CAPITAL EFFICIENCY BY REGISTERED AND GRADE HERDS
363 New York Dairy Farms, 1977

Item	Registered	Grade	570 New York Farms, 1977
Farm capital per man	\$116,938	\$117,055	\$113,684
Farm capital per cow	\$4,288	\$4,047	\$4,003
Land & buildings per cow	\$2,191	\$2,185	\$2,137
Land & buildings/crop acre owned	\$1,064	\$1,055	\$1,039
Machinery investment per cow	\$838	\$791	\$778
Capital turnover (years)	2.7	2.6	2.6

Land and building investment per crop acre owned shows the relationship between investments in land and buildings and cropland. The farmer who owns little cropland but builds lots of farm buildings will have a relatively large land and building investment per crop acre owned and would indicate that his use of capital was "out of balance" with the land resource.

Capital turnover is calculated by dividing the total farm capital (total year-end farm inventory) by the total farm receipts for the year. The factor is called capital turnover because it measures the number of years of receipts needed to equal or "turnover" farm capital. A fast rate of turnover is desirable since it makes it possible to pay off capital purchases faster.

Table 23. SIZE OF HERD & CAPITAL EFFICIENCY BY REGISTERED & GRADE HERDS
363 New York Dairy Farms, 1977

Number of Cows	Number of Farms		Capital Investment Per Cow In:			
	Registered	Grade	Real Estate		Machinery	
			Registered	Grade	Registered	Grade
Under 40	18	31	\$2,286	\$2,381	\$894	\$843
40 - 69	64	121	2,445	2,190	874	833
70 - 99	23	52	2,390	2,252	888	783
100 & over	18	36	1,723	2,021	753	711

There was no consistent pattern between registered and grade herds for the real estate investment per cow, but for machinery per cow the registered herds were consistently higher.

Cost Control

The control of costs is a dominant factor in the success of modern commercial dairy operations. Feed, machinery, and labor costs are major items and are examined in detail. However, it is important to check all cost items both large and small.

Feed Costs - feed is the largest single expenditure on the dairy farm. These 363 New York dairy farms put about one-third of the dollar spent into dairy feed during 1977. In general, all feed expenses including the cost of growing feed crops account for more than half of the costs of producing milk.

The crop program has an important influence on purchased feed costs. Both roughages and grains grown have a bearing on the purchased feed items. Also, the heifer raising practices affect feed costs. The overall feed situation must be examined and evaluated as a "system".

Table 24. FEED COSTS & RELATED MEASURES BY REGISTERED & GRADE HERDS
363 New York Dairy Farms, 1977

Item	Registered	Grade	570 New York Farms, 1977
Feed bought per cow	\$394	\$409	\$377
Crop expense per cow	\$108	\$113	\$107
Feed bought per cwt. milk	\$2.79	\$2.88	\$2.77
Feed & crop expense per cwt. milk	\$3.55	\$3.68	\$3.56
Percent feed is of milk receipts	29%	30%	28%
Hay equivalent per cow (tons)	8.0	7.5	7.6
Crop acres per cow	3.1	3.1	3.1
Lime and fertilizer per crop acre	\$21	\$23	\$22
Heifers as % of cow numbers	80%	73%	72%

Feed bought per cow in 1977 for both the registered and grade herd farms was higher (\$17 and \$32) than the 570 New York farms spent in 1977. Feed bought per hundredweight of milk sold also was higher as was the percent of the milk check to buy dairy feed. The crop acres per cow was the same for all three groups shown above. However, the registered herd farms did produce more hay equivalent per cow (8.0 vs. 7.5 and 7.6). It must be remembered that 1977 generally was not as good a crop year as 1978.

Heifers as a percent of cows was less for the grade herds than for the registered herds. The registered herds grow more heifers so they can sell more cattle for dairy purposes.

Machinery, Labor and Miscellaneous Costs - labor and machinery operate as a "team" on a modern farm. The challenge is to get an efficient combination that will give a reasonable cost per unit of output.

Table 25. LABOR & MACHINERY COSTS BY REGISTERED & GRADE HERDS
363 New York Dairy Farms, 1977

Item	Registered	Grade	570 New York Farms, 1977
Total machinery ^{1/}	\$18,010	\$18,398	\$18,267
Machinery cost per cow	\$273	\$263	\$257
Machinery costs/cwt. milk	\$1.93	\$1.86	\$1.89
Total labor costs ^{2/}	\$17,531	\$17,868	\$18,266
Labor costs per cow	\$266	\$255	\$257
Labor costs/cwt. milk	\$1.88	\$1.80	\$1.89
Labor & machinery costs/cwt. milk	\$3.81	\$3.66	\$3.78

1. Machinery depreciation, seven percent interest on the average machinery inventory, machine hire, machinery repairs, farm share of auto expense, and gas and oil are all included.
2. Includes hired labor and paid family labor, plus unpaid family labor valued at \$400 per month and operator's labor valued at \$600 per month.

Both total machinery and total labor costs were slightly less for the registered than for the grade herds in 1977, but the costs per cow and per cwt. of milk were higher because of smaller operations. This emphasizes the importance of a balance between machinery and labor and the units of output.

Table 26. MISCELLANEOUS COSTS CONTROL MEASURES
BY REGISTERED AND GRADE HERDS
363 New York Dairy Farms, 1977

Item	Registered	Grade	570 New York Farms, 1977
Veterinary & medicine per cow	\$28	\$23	\$24
Other livestock expense per cow	\$54	\$49	\$46
Real estate expense per cow	\$109	\$103	\$99
Total farm expenses per cow	\$1,543	\$1,520	\$1,460

Other livestock expenses per cow include dairy supplies, bedding and DHIC fees but exclude breeding fees and milk marketing. Real estate expenses include repairs, taxes, insurance, and rent. The costs per cow for most items seemed to be a little higher for the registered herds than for the grade herds.

Feeding Practices

Much information on feeding practices is collected by the Dairy Herd Improvement record system. With the use of computers, a number of helpful management factors are calculated and made available to the farmer for use in making his feeding management decisions. These are reported on this page.

Table 27. FEEDING PRACTICES OF REGISTERED AND GRADE HERDS
363 New York Dairy Farms, 1977

Factor	Registered	Grade	363 Farms
Pounds concentrates fed/cow	5,573	5,606	5,595
Feeding index	118	120	119
Rate of roughage feeding	2.3	2.3	2.3
Percent of net energy from:			
Concentrates	47%	48%	48%
Succulents	32%	33%	32%
Hay	13%	13%	13%
Pasture	9%	7%	8%
Income over value of feed	\$875	\$827	\$843

There was little difference in the average pounds of concentrates fed per cow by the registered operators and the grade herd operators. There was a wide range, however, within both herd groups.

The sources of net energy provided the cows is also computed. For the year, a total average for the herd is figured. This is what is reported and used in this study. Again there was no significant difference in the sources of net energy used by the registered and grade herd groups.

Income over value of feed is a dollar figure frequently used in the DHI record work. The value of the milk produced is computed along with a total cost or value of the feed fed to the cow. The difference is the amount available to cover wastage and all costs other than feed. The registered herds had an income over value of feed of \$875 compared with \$827 for the grade herds. These two figures are in line with the labor incomes calculated earlier using the farm business records.

Below is a summary table showing the relationship of pounds of concentrates fed per cow and related business factors.

Table 28. POUNDS OF CONCENTRATES FED PER COW AND RELATED FACTORS
363 New York Dairy Farms, 1977

Lbs. Concentrate/Cow	Number of Cows	Lbs. Milk Per Cow		Labor & Mgt. Income/Opr.
		Produced	Sold	
3,000 or less	39	12,000	11,500	\$2,849
3,001 to 4,000	54	12,400	11,800	752
4,001 to 5,000	58	13,900	13,200	3,209
5,001 to 6,000	68	14,900	14,100	4,068
6,001 & over	79	16,200	15,100	2,495

Breeding Practices

Feeding and breeding practices are both important elements in dairy herd management. Again information is gathered through the DHI system and many useful indicators are provided to the dairymen. Below are some selected breeding factors.

Table 29. BREEDING PRACTICES OF REGISTERED AND GRADE HERDS
363 New York Dairy Farms, 1977

Factor	Registered	Grade	363 Farms
% days in milk	86%	86%	86%
Average days dry	62	62	62
Projected calving interval	12.9	13.0	12.9
Breedings per conception	1.7	1.7	1.7
Age at first calving	29	29	29
Weight at first calving	1,080	1,070	1,080
Age all cows	55	54	54
Weight all cows	1,250	1,230	1,240
% leaving herd for other than dairy purposes	26%	30%	29%

The registered and grade herds were similar in many of the factors. A few small differences appear to exist. The registered herds had slightly heavier bodyweights both at first calving and for all cows. Similarly, the registered herds were a little older (55 vs. 54).

The percent leaving the herd showed a difference of 26% for the registered herds and 30% for the grade herds. The figures used here are that of cows leaving the herd for non-dairy purposes or as "culls". It is likely that the registered herds sold more animals for dairy purposes and thereby may have reduced somewhat the number leaving for culling reasons.

General Tables

The tables on the next four pages are general or summary type presentations. Table 30 contains the averages for all the dairy herd management practices studied. The tables on pages 22 to 24 are summary operating statements for the registered, the grade, and all 363 farms combined. These are useful when one wishes to get a quick overview of the general nature of these farms.

Table 30. AVERAGE OF SELECTED FACTORS FOR REGISTERED AND GRADE HERDS
363 New York Dairy Farms, 1977

Factor	Average		
	Registered	Grade	All Farms
Number of farms	123	240	363
% farms with DHIC records	94%	79%	84%
% farms with owner-sampler	6%	21%	16%
% farms with free stall barns	29%	38%	35%
Man equivalent	2.4	2.4	2.4
Number of cows	66	70	69
Number of heifers	53	51	51
Total crop acres	202	2.6	211
Total end inventory	\$282,989	\$283,274	\$283,176
Milk produced per cow	14,895	14,762	14,807
Milk sold per cow	14,133	14,166	14,083
Tons hay equivalent per acre	2.6	2.3	2.4
Tons corn silage per acre	14.9	13.9	14.3
Cows per person	27	29	29
Milk sold per person	385,455	409,752	401,529
Feed purchased per cow	\$394	\$409	\$402
% feed is of milk receipts	29%	30%	29%
Feeding index	118	120	119
Rate of roughage feeding	2.3	2.3	2.3
Pounds concentrates fed/cow	5,573	5,606	5,595
% net energy from concentrates	47%	48%	48%
% net energy from succulents	32%	33%	32%
% net energy from hay	13%	13%	13%
% net energy from pasture	9%	7%	8%
Projected minimum calving interval (months)	12.9	13.0	12.9
Days dry	62	62	62
% days in milk	86%	86%	86%
Breedings per conception	1.7	1.7	1.7
% leaving herd	26%	30%	29%
Age at first calving (months)	29	29	29
Age all cows (months)	55	54	54
Bodyweight all cows (lbs.)	1,250	1,230	1,240
Bodyweight at first calving (lbs.)	1,080	1,070	1,080
Income over value feed	\$875	\$827	\$843
Average price received for milk	\$9.78	\$9.74	\$9.75
Labor & management income per operator	\$3,688	\$2,914	\$3,178

Table 31.

FARM BUSINESS SUMMARY FOR REGISTERED HERDS
123 New York Dairy Farms, 1977

<u>CAPITAL INVESTMENT</u>			<u>RECEIPTS</u>	
	<u>1/1/77</u>	<u>1/1/78</u>		
Livestock	\$ 58,459	\$ 62,010	Milk sales	\$91,260
Feed & supplies	20,917	21,051	Crop sales	759
Machinery & equipment	50,070	55,290	Dairy cattle sold	7,262
Land & buildings	134,912	144,638	Livestock sales	1,630
TOTAL INVESTMENT	\$264,358	\$282,989	Gas tax refund	147
			Government payments	377
			Work off farm	93
			Custom machine work	87
			Miscellaneous	1,081
			TOTAL CASH RECEIPTS	\$102,696
			Increase in livestock	3,551
			Increase in feed & supplies	134
			TOTAL FARM RECEIPTS	\$106,381
<u>EXPENSES</u>			<u>FINANCIAL SUMMARY</u>	
Labor			Total Cash Receipts	\$102,696
Hired		\$ 7,331	Total Cash Expenses	78,094
Feed			NET FARM CASH FLOW	\$ 24,602
Dairy concentrate		26,036	Total Farm Receipts	\$106,381
Hay and other		1,244	Total Farm Expenses	101,826
Machinery			LABOR & MGT. INCOME/FARM	\$ 4,555
Machine hire		804	Number of operators (152)	1.2
Machinery repair		4,631	LABOR & MGT. INCOME/OPERATOR	\$ 3,688
Auto expense		337		
Gas and oil		2,939	<u>BUSINESS FACTORS</u>	
Livestock			Man equivalent	2.4
Purchased animals		2,231	Number of cows	66
Breeding fees		1,526	Number of heifers	53
Veterinary, medicine		1,832	Acres of hay crops	107
Milk marketing		2,237	Acres of corn silage	54
Other livestock expense		3,580	Total acres of crops	202
Crops			Lbs. of milk sold	932,800
Lime and fertilizer		4,340	Lbs. of milk sold/cow	14,133
Seeds and plants		1,476	Tons hay crops/acre	2.6
Spray and other		1,292	Tons corn silage/acre	14.9
Real Estate			Lbs. of milk sold/man	385,455
Land, building, fence repair		1,730	Cows per man	27
Taxes		2,552	% feed is of milk sales	29%
Insurance		1,767	Feed & crop exp./cwt. milk	\$3.55
Rent		1,139	Lime & fertilizer/crop acre	\$21
Other			Machinery cost/cow	\$273
Telephone (farm share)		385	Av. price/cwt. milk	\$9.78
Electricity (farm share)		1,727		
Interest paid		5,555		
Miscellaneous		1,403		
TOTAL CASH EXPENSES		\$ 78,094		
Machinery depreciation		5,611		
Building depreciation		2,669		
Unpaid labor		1,200		
Interest on farm equity @ 7%		14,252		
TOTAL FARM EXPENSES		\$101,826		

Table 32.

FARM BUSINESS SUMMARY FOR GRADE HERDS
240 New York Dairy Farms, 1977

<u>CAPITAL INVESTMENT</u>			<u>RECEIPTS</u>	
	<u>1/1/77</u>	<u>1/1/78</u>		
Livestock	\$ 50,934	\$ 54,039	Milk sales	\$ 96,538
Feed & supplies	20,488	20,949	Crop sales	815
Machinery & equipment	50,595	55,367	Dairy cattle sold	5,841
Land & buildings	<u>142,447</u>	<u>152,919</u>	Livestock sales	1,216
TOTAL INVESTMENT	\$264,464	\$283,274	Gas tax refund	153
			Government payments	359
			Work off farm	87
			Custom machine work	120
			Miscellaneous	<u>1,208</u>
			TOTAL CASH RECEIPTS	\$106,337
<u>EXPENSES</u>			Increase in livestock	3,105
<u>Labor</u>			Increase in feed & supplies	<u>461</u>
Hired	\$ 8,268		TOTAL FARM RECEIPTS	\$109,903
<u>Feed</u>				
Dairy concentrate		28,605		
Hay and other		1,315		
<u>Machinery</u>				
Machine hire		747		
Machinery repair		4,745		
Auto expense		342		
Gas and oil		2,936		
<u>Livestock</u>				
Purchased animals		2,602		
Breeding fees		1,165		
Veterinary, medicine		1,620		
Milk marketing		2,384		
Other livestock expense		3,442		
<u>Crops</u>				
Lime and fertilizer		4,960		
Seeds and plants		1,512		
Spray and other		1,408		
<u>Real Estate</u>				
Land, building, fence repair		1,579		
Taxes		2,613		
Insurance		1,705		
Rent		1,285		
<u>Other</u>				
Telephone (farm share)		370		
Electricity (farm share)		1,704		
Interest paid		7,491		
Miscellaneous		<u>1,058</u>		
TOTAL CASH EXPENSES		\$ 83,856		
Machinery depreciation		5,919		
Building depreciation		2,684		
Unpaid labor		1,200		
Interest on farm equity @ 7%		<u>12,724</u>		
TOTAL FARM EXPENSES		\$106,383		
			<u>FINANCIAL SUMMARY</u>	
			Total Cash Receipts	\$106,337
			Total Cash Expenses	<u>83,856</u>
			NET FARM CASH FLOW	\$ 22,481
			Total Farm Receipts	\$109,903
			Total Farm Expenses	<u>106,383</u>
			LABOR & MGT. INCOME/FARM	\$ 3,520
			Number of operators (290)	1.2
			LABOR & MGT. INCOME/OPERATOR	\$ 2,914
			<u>BUSINESS FACTORS</u>	
			Man equivalent	2.4
			Number of cows	70
			Number of heifers	51
			Acres of hay crops	117
			Acres of corn silage	59
			Total acres of crops	216
			Lbs. of milk sold	991,600
			Lbs. of milk sold/cow	14,166
			Tons hay crops/acre	2.3
			Tons corn silage/acre	13.9
			lbs. of milk sold/man	409,752
			Cows per man	29
			% feed is of milk sales	30%
			Feed & crop exp./cwt. milk	\$3.68
			Lime & fertilizer/crop acre	\$23
			Machinery cost/cow	\$263
			Av. price/cwt. milk	\$9.74

Table 33.

FARM BUSINESS SUMMARY
Average of 363 New York Dairy Farms, 1977

<u>CAPITAL INVESTMENT</u>			<u>RECEIPTS</u>	
	<u>1/1/77</u>	<u>1/1/78</u>		
Livestock	\$ 53,484	\$ 56,739	Milk sales	\$ 94,749
Feed & supplies	20,633	20,983	Crop sales	796
Machinery & equipment	50,417	55,341	Dairy cattle sold	6,322
Land & buildings	<u>139,894</u>	<u>150,113</u>	Livestock sales	1,356
TOTAL INVESTMENT	\$264,428	\$283,176	Gas tax refund	151
			Government payments	365
			Work off farm	89
			Custom machine work	109
			Miscellaneous	<u>1,165</u>
			TOTAL CASH RECEIPTS	\$105,102
			Increase in livestock	3,255
			Increase in feed & supplies	<u>350</u>
			TOTAL FARM RECEIPTS	\$108,707
<u>EXPENSES</u>			<u>FINANCIAL SUMMARY</u>	
<u>Labor</u>			Total Cash Receipts	\$105,102
Hired		\$ 7,951	Total Cash Expenses	<u>81,904</u>
<u>Feed</u>			NET FARM CASH FLOW	\$ 23,198
Dairy concentrate		27,734	Total Farm Receipts	\$108,707
Hay and other		1,291	Total Farm Expenses	<u>104,839</u>
<u>Machinery</u>			LABOR & MGT. INCOME/FARM	\$ 3,868
Machine hire		<u>767</u>	Number of operators (442)	1.2
Machinery repair		4,706	LABOR & MGT. INCOME/OPERATOR	\$ 3,178
Auto expense		340		
Gas and oil		2,937	<u>BUSINESS FACTORS</u>	
<u>Livestock</u>			Man equivalent	2.4
Purchased animals		2,476	Number of cows	69
Breeding fees		1,287	Number of heifers	51
Veterinary, medicine		1,692	Acres of hay crops	114
Milk marketing		2,335	Acres of corn silage	57
Other livestock expense		3,489	Total acres of crops	211
<u>Crops</u>			Lbs. of milk sold	971,700
Lime and fertilizer		4,750	Lbs. of milk sold/cow	14,083
Seeds and plants		1,500	Tons hay crops/acre	2.4
Spray and other		1,369	Tons corn silage/acre	14.3
<u>Real Estate</u>			Lbs. of milk sold/man	401,529
Land, building, fence repair		1,630	Cows per man	29
Taxes		2,592	% feed is of milk sales	29%
Insurance		1,726	Feed & crop exp./cwt. milk	\$3.64
Rent		1,235	Lime & fertilizer/crop acre	\$23
<u>Other</u>			Machinery cost/cow	\$265
Telephone (farm share)		375	Av. price/cwt. milk	\$9.75
Electricity (farm share)		1,712		
Interest paid		6,835		
Miscellaneous		<u>1,175</u>		
TOTAL CASH EXPENSES		\$ 81,904		
Machinery depreciation		5,814		
Building depreciation		2,679		
Unpaid labor		1,200		
Interest on farm equity @ 7%		<u>13,242</u>		
TOTAL FARM EXPENSES		\$104,839		